



Natural Gas Training School

**WE Skelton 4-H Center
Wirtz, VA
October 20-24**

Background

- Aging work force in our industry creates opportunities for advancement and new hires
- There is no training offered as being proposed here
- Local to Virginia
- Potential to move around the state to other locations

What Kind of Class

- A training class with an emphasis on CFR Part 192
- Introduction to the right way to do things.
- Not intended as OQ certification
- Kinds of Training to be offered
 - Classroom
 - Hands on
- Which subjects will be taught
 - Joining of plastic pipe
 - Installation of pipe
 - Line locating

Who?

- Who is the class for?
 - New hires
 - New engineers
 - New inspectors
 - Field crew leaders
- Who are the instructors?
 - Stakeholders from our industry
 - Joining of pipe - Garland Isaacs, Central Plastics and Jeff Cox, Perfection
 - Installation of pipe – Bill Williams, Willbros
 - Line locating – George Kinsey, S&N Communications
 - SCC Staff – Shane Ayers

Curriculum

- The curriculum follows closely the enhanced OQ modules for Line locating, joining of pipe and installation of pipe
- The curriculum was developed to fit a weeklong class
- One day will be dedicated to each topic which includes classroom training in the morning and hands on in the afternoon

Day 1

A. Pipe Joining (Plastic) (Garland Isaacs)

Code Review (Operator)

- Static Electricity
 - Knowledge of Static Electricity
- Electrofusion
 - Knowledge of Pipe Preparation Process
 - Knowledge of Electrofusion Process
 - Know what to Visually Inspect for on a Electrofusion Joint
- Socket Fusion
 - Knowledge of Pipe Preparation Process
 - Knowledge of Socket Fusion Process
 - Know what to Visually Inspect for on a Socket Fusion Joint
- Butt Fusion
 - Knowledge of Pipe Preparation Process
 - Know what to Visually Inspect for on a Butt Fusion Joint
- Manual Butt Fusion
 - Knowledge of Manual Butt Fusion Process
- Hydraulic Butt Fusion
 - Knowledge of Hydraulic Butt Fusion Process
-

- Saddle/Side Wall Fusion
 - Knowledge of Pipe Preparation Process
 - Knowledge of Saddle/Side Wall Fusion Process
 - Know what to Visually Inspect for on a Saddle/Side Wall Fusion Joint
- Material Transitions
- Cross-fusion w/ different materials (awareness, but no training/procedures)
- Abnormal Operating Conditions
 - Knowledge of How to Recognize Material Defects
 - Knowledge of How to React to Material Defects
 - Knowledge of How to Recognize Equipment Malfunctions
 - Knowledge of How to React to Equipment Malfunctions
 - Knowledge of How to Recognize Improper Fusions
 - Knowledge of How to React to Improper Fusions
- **B. Pipe Joining Demonstrations (Garland Isaacs)**
 - Butt Fusion
 - Socket Fusion
 - Sidewall Fusion
 - Electrofusion
-

Day 2

C. Mechanical Joining (Jeff Cox)

- Code Review (Operator)
- Pipe Preparation
 - Knowledge of the pipe preparation process
- Mechanical Joining of Plastic Pipe
 - Knowledge of Pipe Preparation Process
 - Knowledge of Mechanical Fittings (e.g. type, DR)
 - Demonstrate Installation of a Stab Fitting
 - Demonstrate Installation of a Compression Fitting
 - Demonstrate Installation of a Bolted Fitting
- Abnormal Operating Conditions
 - Knowledge of How to Recognize Material Defects
 - Knowledge of How to React to Material Defects
 - Knowledge of How to Recognize Equipment Malfunctions
 - Knowledge of How to React to Equipment Malfunctions
 - Knowledge of How to Recognize Improper Fusions
 - Knowledge of How to React to Improper Fusions

D. Mechanical Joining Demonstrations (Jeff Cox)

Compression (Instructor Demo)

Stab

Bolted Sleeve (Instructor Demo)

E. Installation of Pipe (Bill Williams)

Code Review (Operator)

- Excavation (SCC Staff)
 - Knowledge of Damage Prevention Laws and Rules
 - Knowledge of Excavating Requirements and Best Practices
 - Knowledge of when Facility Supports are Needed
 - Knowledge of How to Respond to Facility Marking Issues
 - Knowledge of How to Respond to an Unknown Facility

- Backfilling (After Lunch)
 - Knowledge of Backfilling Materials
 - Knowledge of Compaction Process
 - Knowledge of How to Respond to Improper Soil Conditions
- Storage, Handling and Inspection of Pipe
 - Understand pipe storage requirements (e.g. job site, trucks, stacking)
 - Know how to verify the correct pipe material
 - Know how to move pipe without damaging (e.g. transportation, dragging)
- Inspection of Pipe
 - Knowledge of pipe inspection methods (e.g. damage, date of manufacturer, handling, job site storage and installation)
 - AOC - Knowledge of how to react to damaged pipe
- Pipe Depth
 - Knowledge of the proper pipe depth requirements
 - AOC - Knowledge of how to react to insufficient depth
- Utility Separation
 - Knowledge of separation requirements from other utilities and structures
 - AOC - Knowledge of how to react to insufficient utility clearance
- Tracer Wire Installation (Locatability)
 - Knowledge of the tracer wire installation procedures
 - AOC - Knowledge of how to react to tracer wire continuity failures

Day 2

- Documentation
 - Knowledge of the documentation requirements
 - AOC - Knowledge of the how to react to an undocumented existing pipeline facility
- Post Installation Markings
 - Knowledge of locating and marking requirements
- Installing Pipe in an Open Trench
 - Know how to properly prepare a trench
 - Knowledge of the methods to reduce plastic pipe stresses
 - Knowledge of pipe lowering methods
 - AOC - Knowledge of how to react to rocks in a trench
- Installing Pipe by Trenchless Methods
 - Knowledge of reaming and pull back process
 - Knowledge of acceptable bend radius
 - Knowledge of when and how to inspect (time, length)
 - Knowledge of weak link methods
 - Knowledge of pneumatic boring process
 - Knowledge of the boring process
 - AOC - Knowledge of how to react to an improper bend radius
 - AOC - Knowledge of how to react to an improper reamer size
 - AOC - Knowledge of how to react to unanticipated pipe resistance
 - AOC - Knowledge of how to react to weak link breaks
- Installing Pipe by Vibratory Plow
 - Knowledge of blade tool, pipe selection and length of pipe
 - Knowledge of the plowing process
- Installing Pipe by Dead Insertion
 - Know how to protect pipe at during insertion process
 - Knowledge of insertion process

Day 3

F. Line Locating (George Kinsey)

- Code Review (Operator)
- Marking Overview
 - Knowledge of marking colors
 - Knowledge of marking methods and techniques
 - Knowledge of where to mark
 - Knowledge of marking regulations
- Fundamentals of Locating
 - Demonstrate ability to read maps
 - Knowledge of alternate methods used when maps are not available or are not correct
 - Knowledge of the characteristics of pipe and soil relevant to locating
 - Knowledge of electromagnetic characteristics
 - Knowledge of locating regulations
 - Knowledge of documentation requirements
- Conductive Locating
 - Knowledge of the conductive method
 - Knowledge of grounding techniques
 - Demonstrate locating process using the conductive method
- Inductive Locating
 - Knowledge of the inductive method
 - Demonstrate locating process using the inductive method
- Abnormal Operating Conditions
 - Missing or broken tracer wire
 - Difficulty locating pipeline
 - Inadequate depth of cover
- Non-Electromagnetic Locating Systems
 - RFID and EMS
 - Acoustic
 - GPR
- ***G. Line Locating Demonstrations***
 - Conductive
 - Inductive
 - EMS and RFID
 - Acoustic
 - GPR

Day 4

- Half a day
- Meter Set AOC Overview
- Review of all classes
- Test

W. E. Skelton 4-H Educational Center at Smith Mountain Lake













Activities Available

- Canoeing
- Shooting range
- Hiking
- Basketball
- Tennis
- Fishing
- Mini Golf
- Climbing Wall
- Low Ropes

Essentials To Know

- The school is scheduled for the week of October 20-24
- Monday October 20 is a travel day
- BBQ hosted by S&N Monday night
- Classes Tuesday, Wednesday & Thursday
- Wrap up and test on Friday and leave at noon
- 30 persons maximum attendance
- Registration fee \$600 per person includes food, lodging & activities

Ed Painter

540-777-3801

ed_painter@roanokegas.com